

DEVICE TO PERMIT OFFPUMP BEATING  
HEART CORONARY BYPASS SURGERY

ABSTRACT

A system for manipulating a heart during cardiac surgery links lifting of the heart and regional immobilization which stops one part of the heart from moving to allow expeditious suturing while permitting other parts of the heart to continue to function whereby coronary surgery can be performed on a beating heart while maintaining cardiac output unabated and uninterrupted. Circumflex coronary artery surgery can be performed using the system for manipulating a heart during cardiac surgery of the present invention. The system is an improvement on the retractor disclosed in parent application Serial Number 08/936,184 filed on 09/17/97 and locates a suspension head near the apical region of the heart and a gross support near the base of the heart near the AV groove. A frame is positioned within the patient's thoracic region and moves with the patient, and a surgical target immobilizer can be used to assist in the movement of the heart if desired. A special suction cup is used which accommodates multiplanar movement of the heart and the myocardium while also preventing heart tissue from interrupting the suction being applied to the heart. One form of the system can be used in minimally invasive surgery.